

WHAT IS CLAIMED IS:

1. A system target decoder operable to receive and process information, comprising:
 - a) a first demultiplexer operable to demultiplex a transport stream into 5 packets each having a given packet identifier;
 - b) at least two transport buffers operable to receive packets from the first demultiplexer, each said transport buffer receiving packets with the same packet identifier;
 - c) a smoothing buffer, corresponding to one of the transport buffers, 10 operable to receive packets from the transport buffer at a predetermined rate;
 - d) a second demultiplexer operable to demultiplex data from within the packets from the smoothing buffer into data access unit data; and
 - e) at least two data elementary buffers operable to receive the data access 15 unit data from the second demultiplexer.
2. The decoder as claimed in claim 1, wherein the system further includes a third demultiplexer between the smoothing buffer and the second demultiplexer operable to demultiplex asynchronous data separate from synchronized data.
- 20 3. The decoder as claimed in claim 1, wherein the second demultiplexer also demultiplexes asynchronous data separate from synchronized data.
4. A method of demultiplexing data within a transport stream packet comprising the steps of:

- a) receiving a transport stream at a first demultiplexer;
- b) initially demultiplexing the transport stream into packets with a first demultiplexer using packet identifiers;
- c) buffering the packets from the first demultiplexer in a transport buffer;
- 5 d) sending the packets from the transport buffer to a smoothing buffer;
- e) transmitting the packets from the smoothing buffer to a second demultiplexer;
- f) using information in the packet header identifying data access units to secondarily demultiplex data from within the packet; and
- 10 g) storing synchronized data access units reconstructed from secondarily demultiplexed data in a data elementary buffer.

- 5. The method as claimed in claim 4, wherein the second demultiplexer also demultiplexes asynchronous data separate from synchronized data.
- 6. The method as claimed in claim 4, wherein the method includes the further step of demultiplexing asynchronous data separate from synchronized data between the transmitting and using steps.